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A qualitative study of sleep and daily routines from focus groups with Chinese and Bangladeshi American Older Adults living in New York City

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Abstract

The aim of the current study was to collect qualitative data to understand the nature of sleep and sleep difficulties among older Asian American older adults and identify daily routines that may lend insight into modifiable targets for future nursing interventions. We recruited Chinese and Bangladeshi older adults with low English proficiency from community-based settings in New York City. Eligible participants were aged ≥55 years and reported China or Bangladesh as their country of origin. Focus groups were conducted in their native language. Participants completed a questionnaire before joining the discussion. Participants (N=32) were 57% Chinese American and 43% Bangladeshi American. Average age was 73 years, 50% of the sample reported diabetes, and 22% reported sleep apnea. Our analysis revealed the daily routines among older Chinese and Bangladeshi Americans. Both groups reported general sleep difficulties and sleep difficulties related to health conditions as well as some subgroup differences. Future research may consider designing tailored nursing interventions to improve sleep among these groups.

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Keywords

Healthy aging; sleep difficulties; older adults; community health

INTRODUCTION

Insufficient sleep (i.e., < 7 hours per night) and sleep difficulties are more common among older adults (i.e., age ≥65 years) compared to younger adults (Gooneratne & Vitiello, 2014; Ohayon, 2002). Compared to non-Hispanic White individuals, insufficient sleep has been found to be more prevalent among Asian American individuals (Carnethon et al., 2016; Whinnery et al., 2014). Insufficient sleep and sleep difficulties are associated with increased risk of dementia and all-cause mortality (Robbins et al., 2021). Elucidating the barriers to sleep among Asian American individuals may illuminate opportunities for nursing research and intervention to improve sleep among this population.

Among a community sample, Asian American individuals (comprised primarily of Chinese Americans) slept significantly fewer hours (6.85 hours) than their White counterparts (7.5 hours) (Carnethon et al., 2016). Similarly, Whinnery et al. found that Asian Americans were two to three times more likely to report very short sleep duration (<5 hours) compared to White individuals (Whinnery et al., 2014). Further, research has also shown that first generation Asian immigrants reported significantly more sleep difficulties than their US-born counterparts, an effect which was mediated by language acculturation (Hale et al., 2014). Therefore, particularly in light of the increase in sleep issues among older adults compared to younger adults (Gooneratne & Vitiello, 2014; Ohayon, 2002), Asian Americans older adults with limited English proficiency may be at a particularly high risk for sleep difficulties.

In addition to insufficient sleep, research has found that Chinese American individuals have the highest odds of sleep disordered breathing according to polysomnography of a variety of race/ethnic groups studied (Chen et al., 2015). Further, in a community-based sample of Chinese American individuals living in a senior center, 55% of the sample reported very poor sleep quality, which in turn was strongly related to the number of chronic conditions reported by participants (Hsu, 2001).

Research shows that strong social cohesion is associated with higher quality of life among Chinese American older adults (Liou & Shenk, 2016). Unfortunately, research among Chinese American individuals has shown that emotional or social isolation is common (Dong et al., 2012). Further, Liou and Shenk also found that lower English proficiency was associated with less perceived social support (Liou & Shenk, 2016). Research has also shown that another form of loneliness and depressive symptoms among older adults (age ≥60 years) is due to expectations of filial piety (Li & Dong, 2018). One contributing factor to loneliness among Asian older adult immigrants may have to do with shifting norms and expectations held by older adults and their adult children. Immigrant communities, including Chinese and Bangladeshi, exhibit cultural preferences and norms regarding taking care of elderly parents as reciprocity among generations. Adult children reciprocate by caring for their parents as they age (e.g., feelings of filial piety) (Gupta & Pillai, 2000; Ramanathan &

Ramanathan, 1994). Therefore, adult children of Asian immigrants who come of age in the United States and raise families of their own may be less likely to adhere to these cultural norms and expectations, leaving older adults at greater risk for perceptions of loneliness, social isolation, and health concerns, which may limit sleep health among older adults.

Bangladeshi Americans are a growing and emerging immigrant community yet understudied in the published literature. The literature on Bangladeshi individuals specifically is sparse as these individuals are commonly grouped under many other ethnic groups as "South Asians." To understand sleep and daily routines among Chinese and Bangladeshi American populations, we conducted a qualitative investigation among older Chinese and Bangladeshi older adults with limited English proficiency living in New York City with the ultimate aim of identifying potentially modifiable targets for gerontological nursing interventions to improve sleep among these populations.

METHODS

Study Design

We conducted four focus groups in community-based settings with older adults of either Chinese or Bangladeshi origin in accordance with the constant comparative method of grounded theory (Charmaz, 2006). We conducted two focus groups for Chinese Americans, one in Mandarin (n=8) and one in Cantonese (n=10). We conducted two focus groups for Bangladeshi Americans, both in Bengali, one at a faith-based center (n=6) and another at a community center (n=8). Eligibility criteria for participation included reporting China or Bangladesh as country of origin and age ≥55 years, as required in studies funded by the National Institutes on Aging. Proficiency in English was not a requirement for participation. This study was approved by the Institutional Review Board at the New York University School of Medicine.

Recruitment

Participants were recruited through community- and faith-based organizations located in New York City. Chinese American older adults were recruited from an organization that provides meals, programming, and social support services. Bangladeshi American older adults were recruited either through a faith-based organization or a community organization offering meals and educational and religious programming. Participants were recruited through in-language flyers posted at each center. Community leaders from each organization aided the researchers in scheduling participants to a focus group at a time of their choosing.

Focus groups

Focus groups had six to 10 participants. All focus groups were led by a bilingual native speaker in either Mandarin or Cantonese for Chinese participants, and Bengali for Bangladeshi American participants. The focus group leader first reviewed the consent document in the participants' native language. Signed consent was collected after ensuring comprehension and that all questions from participants were answered. Participants first completed a survey assessing demographic characteristics, health conditions, and self-reported health.

Our focus group guide was informed by a review of the literature on older adults and sleep. Focus group discussions covered several broad topics, including daytime routines ("What is your typical daily routine?"), sleep routines ("Tell me what happens when you wake up? What are your routines? What about the nighttime? What are your routines around dinner time and after?") and sleep difficulties ("Tell me about your sleep? How is your sleep quality overall? Do you experience any difficulties?").

The focus groups were recorded and transcribed in-language by the bilingual study team member who led the given focus group. Focus group transcripts were then translated by the same study team member into English. During the focus groups, a second bilingual team member took notes. These notes were drafted into a memo summarizing the patterns in the focus group transcripts. The bilingual notetaker reviewed the in-language transcripts and English translations. Any discrepancies or questions regarding translation were resolved through discussion until consensus was reached to ensure accuracy, meaning, context, and nuance were properly captured. The notes and memos for each focus group were circulated among the research team and provided a framework for the coding of emerging patterns.

Analysis of qualitative data

Focus group transcripts were analyzed by two trained coders. Analysis proceeded according to the constant comparative method (Charmaz, 2006), which is a method for understanding and summarizing comments from participants through the use of codes, then identifying emerging patterns when the totality of the excerpts are analyzed in the aggregate. According to this method, coders first read the memos followed by the transcripts without conducting any analysis. After the first reading, it became clear that the Chinese and Bangladeshi American participants had unique patterns that required separate analyses. On the second reading, the coders were trained to underline compelling quotes, highlight interesting points, and summarize the transcripts with notes in the margins (codes). On the third reading, coders first reviewed their notes and developed a long list of codes to describe the comments from participants. These efforts resulted in a draft codebook. Then, coders assigned these draft codes to the comments independently through several iterative rounds of reading and coding. Coders were instructed to continue this process, reducing the number of codes to a more concise list with each round of coding. After several rounds of this independent coding the coders convened and reviewed the codes they respectively assigned. In this meeting, the coders discussed any coding discrepancies and made decisions about codes to change, edit, or remove from the list, and synthesized codes into broad categories (Glaser, 1965). Finally, the codes and categories were reviewed by a third trained coder to ensure they were clear and appropriate.

RESULTS

Table 1 displays participant self-reported demographic and chronic condition information. Among the sample (N=32), 50% were female, average age was 73 years (SD=8 years), and 75% were married. A diagnosis for diabetes was reported by 50% and a sleep apnea diagnosis by 22%. Just over half of the sample reported China as their country of origin (56%) whereas 44% reported Bangladesh as their country of origin.

Results from the Chinese American focus groups (Table A)

Table A (available in the online version of this article) outlines the results of the analysis of the Chinese American focus groups. From the Chinese American focus groups, the primary categories of comments included: (1) Beliefs Relating to Sleep; (2) Sleep Difficulties; (3) Remedies for Sleep; and (4) Daily Sleep-Related Routines.

Beliefs Relating to Sleep.—The first category pertained to beliefs about sleep. Participants voiced several beliefs about sleep, such as a belief that sleep is important and poor sleep is equated with suffering (e.g., “Poor sleep is quite suffering” and “Bad sleep cause dizziness, and you will feel miserable”). Yet, insufficient or poor quality sleep was reported to be common and considered normative among older adults (e.g., “5 hours is considered pretty well” and “Elderly, we usually have sleeping problem”). Others reported fears about sleeping in (e.g., “I’m scared of laying on the bed when I wake up”).

Sleep Difficulties.—Another category pertained to sleep difficulties among Chinese American individuals. Sleep difficulties were commonly reported among those with chronic conditions, such as prostate cancer (e.g., “I go to use the bathroom. I have to pee at night very frequently”). Chinese American individuals also frequently commented about nighttime awakenings (e.g., “At night, I don’t sleep well. I look at the clock to check the time. *Ai ya* [non-translated expression], not yet. It’s only 3 o’clock”). Another participant explained that sleep difficulties arise when there is disharmony among their family (e.g., “If there are family issues, as the elderly in the family, you definitely cannot sleep well. Every elderly does the same”).

Remedies for Sleep.—Several participants shared the strategies they use when they experience sleep difficulties (e.g., “The best way to do it is not looking at the clock. Don’t check the time [if you wake up], otherwise, the time feels longer”).

Sleep-Related Daily Routines.—Regarding daily sleep routines, Chinese American participants reported waking early and enjoying a consistent morning routine (e.g., “I wake up around 6 o’clock every day, I prepare tea for myself after. I boil tea, and drink it myself, I usually spend 1 or 2 hours enjoying my tea before breakfast”). Several participants also mentioned daytime napping (e.g., “Yes afternoon nap. Usually sleep for like an hour”).

Results from the Bangladeshi American focus groups (Table B)

Table B (available in the online version of this article) outlines the primary results from the Bangladeshi American focus groups. From the Bangladeshi American focus groups, the primary categories included: (1) Daily Sleep-Related Routines; (2) Sleep Difficulties; (3) Socializing; and (4) Remedies for Sleep.

Daily Sleep-Related Routines.—Regarding daily sleep routines, Bangladeshi American individuals commonly reported waking to pray. Some individuals reported waking early for prayer and returning to sleep (e.g., “Well, I wake up and I pray. After that I go back to sleep for about an hour”), while others reported waking and starting their day with prayer (e.g.,

"I usually wake up around sunrise and pray. I'll do a little bit of chores here and there after which I have my breakfast").

Sleep Difficulties.—Regarding sleep difficulties, Bangladeshi Americans commonly reported chronic conditions interfering with their sleep (e.g., "Yeah I've got a lot older and now I have diabetes and sometimes I have to go to the hospital, if I don't watch what I eat. I can't eat the way I used to eat and I can't eat what I used to eat. Sometimes I'll sleep at night and sometimes I don't get any sleep"). Several participants reported difficulty maintaining sleep during the night (e.g., "I also have trouble sleeping. I often don't sleep through the night").

Socializing.—Another common topic that arose during the discussion about sleep was the importance of socializing. As one Bangladeshi American participant explained, "I think coming to centers like the senior center is very useful, it is a very positive experience for many older people to have since they are often alone." Another participant stated, "If I keep myself busy and occupy myself I can sleep well at night."

Remedies for Sleep.—Finally, several Bangladeshi American participants reported behavioral remedies they practice for better sleep such as avoiding afternoon naps (e.g., "I have trouble sleeping. I don't sleep through the night at all. I try not to sleep in the afternoon because then it becomes very difficult at sleep at night"). Another participant acknowledged the impact of self-control on their sleep (e.g., "I also think it's more of a mental thing. You're aware of the consequences that comes with not eating healthy and not exercising. …I know that if I eat a little bit too much it will be more difficult for me to sleep therefore I need to practice self-control.").

DISCUSSION

Insufficient sleep is a risk factor for adverse health outcomes, including dementia and all-cause mortality, among older adults (Robbins et al., 2021). Previous literature documents greater prevalence of insufficient sleep among Asian Americans as compared to other race/ethnic groups, particularly among older Chinese Americans (Carnethon et al., 2016; Whinnery et al., 2014). Insufficient sleep and sleep difficulties may be more pronounced among older Asian American older adults, particularly those of low socio-economic status. There is an urgent need for research to identify barriers to sleep among these population. We conducted focus groups with Chinese and Bangladeshi American older adults from community and faith-based centers to gain qualitative insight into self-reported sleep difficulties and potentially modifiable daily routines with the aim of informing future research and community-based gerontological nursing practice.

First, we recruited Chinese and Bangladeshi American older adults who have low English proficiency, live in New York City, and attend community centers. Several similarities emerged across the two sets of focus groups. First, both groups reported sleep difficulties due to chronic conditions Chinese American older adults reported prostate cancer and hypothyroidism, whereas Bangladeshi American older adults reported diabetes, chronic pain, high cholesterol, and heart disease as conditions that represent a barrier to sleep.

The sample recruited in our study reported a high prevalence of health conditions. Hhealth characteristics of our sample are similar to those in other community-based research which has documented high prevalence of chronic conditions, including obesity, diabetes, and chronic kidney disease, particularly among Bangladeshi Americans (Feng et al., 2019; Hills et al., 2018). The faith-based and community centers reach and serve individuals of low socioeconomic status who have limited access to health care, presenting an opportunity for gerontological nurses to administer behavioral interventions and raise awareness about chronic condition management in these venues.

Second, in describing their daily routines, both groups emphasized their daily morning routines as important and salient components of their day, much more so than nighttime routines, although participants were asked to report on both times of day. Most commonly, Bangladeshi American individuals reported early morning awakenings for prayers, as is common among the Muslim faith. In some cases, Bangladeshi participants ate breakfast and started their day; in other cases, participants reported attempting to go back to sleep after this awakening. Although not necessarily for religious purpose, Chinese American older adults also reported rising early and a fear of sleeping in, which may be associated with cultural priorities placed on wakefulness and productivity as opposed to sleeping. Finally, Bangladeshi American participants cited the importance of socializing as part of their day as being good for their health broadly and sleep specifically. Chinese Americans did not mention socializing as a part of their day with particular relevance to sleep.

Third, Chinese and Bangladeshi and American participants articulated remedies for healthy sleep in the focus group discussion that suggest moderate knowledge among the groups of recommended methods for improving sleep. For instance, some individuals emphasized the importance of not watching television close to bedtime, or “watching the clock” if they are experiencing difficulty falling asleep, as one Chinese American reported. These quotes suggest that some individuals may be knowledgeable about healthy sleep strategies. Two participants in the Chinese focus groups also reported using pharmacological sleep medications.

Although Chinese American and Bangladeshi American older adults reported sleep difficulties, the specific issues voiced by each group were nuanced. Chinese American participants more frequently reported nighttime awakenings and difficulties maintaining sleep (one third of individuals reported nighttime awakenings or early morning awakenings), whereas Bangladeshi American individuals less commonly reported these general complaints. Finally, Chinese American individuals described disunity or conflict among the family unit as a driver of sleep difficulties, which is consistent with previous research suggesting the importance of harmony among the family unit and filial piety in Chinese culture (Li & Dong, 2018).

It is interesting to note that, although not probed specifically for beliefs, Chinese American older adults offered their beliefs and attitudes toward sleep and its relative importance for health. Although several participants related poor sleep to suffering and poor health, there were also comments that suggest short sleep duration is an expected and perhaps inevitable

part of the aging process. Bangladeshi American older adults did not articulate beliefs about sleep in this manner.

The current qualitative investigation of sleep and daily routines among Chinese American and Bangladeshi American individuals with limited English proficiency offers several contributions to the literature. First, the evidence base examining health among Bangladeshi Americans is extremely sparse. Further, we found no literature examining sleep among these individuals. Therefore, several findings identified are useful and illuminate future avenues of research to better understand sleep among this population and perhaps design culturally tailored sleep interventions. In the case of the Chinese American older adults, our findings offer nuance to previous epidemiological data documenting insufficient sleep among Chinese American individuals compared to other race/ethnic groups (Carnethon et al., 2016; Whinnery et al., 2014). Specifically, our research gathering qualitative data offers a rich understanding of specific sleep difficulties and sleep-related daytime routines, such as early morning awakenings, as well as beliefs that short sleep is normative among their peers. For Bangladeshi American older adults, our study presents qualitative data on sleep-related routines, most significantly early awakenings for prayers, as well as sleep difficulties due to various chronic health issues. In addition, our findings highlight the importance of social interactions on improving both mental and sleep health of older Bangladeshi American older adults.

Future Directions

Findings from the current study examining sleep and daily routines among Chinese and Bangladeshi American individuals offer preliminary support for future gerontological nursing research and practice. First, future research must use more rigorous measure of sleep, such as culturally and linguistically appropriate sleep questionnaires and objective measurement, to better understand the sleep difficulties among these populations. Second, our preliminary research uncovers common sleep complaints and difficulties among these populations, such as difficulty maintaining sleep and difficulty waking earlier than desired. Therefore, future research may explore nursing interventions, such as those that employ cognitive behavioral therapy for insomnia (CBT-I) (Trauer et al., 2015; Ye et al., 2016) that are culturally and linguistically tailored to Mandarin-, Cantonese-, or Bengali-speaking individuals for improving sleep among these communities. Third, future research may examine the optimal recommendation for sleep and meal timing among the Bangladeshi individuals who reported waking for prayer and the Chinese American participants who reported waking early. There appeared to be a variety of participants, some who reported waking for prayer and then returning to sleep, and others who reported waking then eating breakfast and starting their day. Future nursing research may examine the sleep, circadian, and cardiometabolic implications of waking and eating breakfast at the early hour of the morning prayer to determine if it perhaps is optimal to return to bed or have a meal and start the day. Fourth, 22% of the sample (6% of Chinese American participants and 16% of Bangladeshi American participants) reported sleep apnea. Future research may explore nursing interventions that aim to promote awareness of sleep apnea symptoms and treatment among these groups, as previous research has shown sleep apnea treatment adherence, although vitally important for health, is low among patients diagnosed with this condition

(Weaver & Sawyer, 2010). Further, given the success of community institutions, such as faith-based and community centers in conducting this research, these centers may be ideal venues for administering gerontological nurse-led interventions.

Limitations

Although this study recruited a hard-to-reach population and conducted focus groups in several languages with Chinese and Bangladeshi Americans with limited English proficiency living in New York City, our study has several important limitations. First, this sample included 32 participants who were recruited with flyers and announcements at community centers. It is possible that the participants who signed up for the focus groups were struggling with sleep and are not representative of the entire population. Second, the findings reported in this qualitative inquiry cannot confirm prevalence of sleep difficulties among these populations. Future research may consider employing more rigorous survey and quantitative sleep measurements to reach such conclusions. Third, several study team members who were involved in the qualitative analysis are not able to read Chinese or Bengali. Our translation process included one bilingual team member who transcribed in-language (i.e. Chinese or Bengali) and then translated the transcript into English. A second bilingual team member reviewed the transcript and translation conflicts were resolved through consensus. The native speakers on the study team translated the focus group transcripts before coding the qualitative data. Thus, it is a limitation that transcripts were not coded in the same language that the data were collected. Nevertheless, the bilingual speakers adjudicated any discrepancies through discussion (in Chinese, Bengali, and English) to ensure accuracy of the translations.

CONCLUSION

We conducted a qualitative investigation among Chinese American and Bangladeshi American older adults with limited English proficiency recruited from community centers and faith-based organizations. Our brief survey suggests that sleep apnea is reported among 22% of the sample, among which Bangladeshi Americans represented the majority of cases. Results from the qualitative investigation found sleep difficulties to be commonly reported across both Asian American subgroups. With some subgroup differences, for example, Bangladeshi American older adults commonly report rising for early morning prayer as a factor influencing their sleep health. These findings may inform future nursing research and strategies aiming to improve sleep among these populations.

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Table 1.

Demographic Characteristics of Participants

		Bangladeshi American Participants (n=14)		Chinese American Participants (n=18)		Total Sample (N=32)	
						N	%
Age (mean = 72.7 years, s.d. = 8.04 years)							
Sex	Female	3	9%	13	41%	16	50%
	Male	11	34%	5	16%	16	50%
Marital Status	Single, widowed	2	6%	4	13%	6	19%
	Single, divorced	1	3%	1	3%	2	6%
	Married	11	34%	13	41%	24	75%
Health Conditions	Diabetes	9	28%	7	22%	16	50%
	Dyslipidemia	10	31%	4	13%	14	44%
	Anxiety	6	19%	1	3%	7	22%
	Sleep Apnea	5	16%	2	6%	7	22%
	Depression	3	9%	1	3%	4	11%
	Heart Problems	2	6%	2	6%	4	12%
Self-Reported Health	Excellent	1	3%	0	0%	1	3%
	Very good	4	13%	0	0%	4	13%
	Good	9	28%	4	13%	13	41%
	Fair	0	0%	11	34%	11	34%
	Poor	0	0%	3	9%	3	9%

Table A

Summary of Chinese sleep-related comments

Language	Exemplary Quote(s)	Notes/Sub-Categories
Beliefs relating to sleep (9 quotes)		
Cantonese	P10: Sleep is very important.	Beliefs that sleep is important
Cantonese	P10: Bad sleep cause dizziness, and you will feel miserable. It feels bad.	Beliefs that sleep is important
Mandarin	P3: Poor sleep is quite suffering.	Downsides of poor sleep
Mandarin	P6: I only need to sleep 5 hours at night, then I will wake up.	Beliefs about healthy sleep duration
Mandarin	P1: You guys should think it this way. The doctor said after you retire, if you have four or five hours sleeping it's enough already. You can tell yourself like this: OK, I slept four or five hours today it's enough. No matter if you wake up in the middle of the night or in the morning it's fine. Just start your day and do whatever you like after you wake up. This way, you will have mental comfort.	Beliefs about healthy sleep duration
Cantonese	P9: 5 hours is considered pretty well.	Beliefs about healthy sleep duration
Mandarin	P2: I'm scared of laying on the bed when I wake up, in Cantonese, it's called sleeping in.	Beliefs about being productive & the importance of waking early
Mandarin	P2: I can't do sleeping in. Wake up, then I have to get up.	Beliefs about being productive & the importance of waking early
Mandarin	P3: Elderly, we usually have sleeping problem.	Normative beliefs about sleep difficulties among older adults
Sleep difficulties (12 quotes)		
Mandarin	P8: Right. I can't have deep sleep since I have hyperthyroidism. It causes me to have trouble sleeping. When I wake up in the morning, I have a lot of symptoms, my throat.	Reasons for sleep difficulties –chronic conditions
Cantonese	P9: I go to use the bathroom. I have to pee at night very frequently.	Reasons for sleep difficulties –chronic conditions
Mandarin	P7: I have prostate, I have to have diaper to sleep.	Reasons for sleep difficulties –chronic conditions
Mandarin	P2: If there's nothing bothering me, my children and my family are doing well, I have better sleep. If there are family issues, as the elderly in the family, you definitely cannot sleep well. Every elderly does the same.	Reasons for sleep difficulties –family/intergenerational issues
Mandarin	P3: Elderly, we usually have sleeping problem.	Aging
Mandarin	P2: I have no other health problems, just sleeping problem. It's been with me for decades.	General sleep complaint
Mandarin	P6: I wake up at 1AM and can't fall back asleep anymore.	Nighttime awakening
Cantonese	P6: Most of the times, after I use the bathroom it is hard to fall back to sleep. I would go use the bathroom at 4ish, and then do the bed exercise since I can't fall back asleep.	Nighttime awakening
Mandarin	P2: At night, I don't sleep well. I look at the clock to check the time. Ai ya, not yet. It is only three o'clock. Take another look again for the time. Four o'clock, ai ya, five o'clock, aiya. Finally, 6 o'clock and I get up. That's how my night goes by.	Nighttime awakening
Cantonese	P5: Once I wake up, I cannot go back to sleep. I'll walk around the house like a black-crowned night heron. I'll walk around the house, just like a ghost.	Nighttime awakening
Cantonese	P2: When I wake up in the middle of the night, it is very difficult to fall back to sleep.	Nighttime awakening
Cantonese	P1: Once I wake up, that's it. I am awake.	Nighttime awakening

Language	Exemplary Quote(s)	Notes/Sub-Categories
Remedies for sleep (5 quotes)		
Mandarin	P6: Sometimes if it's late, I will get up to read the newspaper for a while. That's it.	Behavioral strategy
Mandarin	P4: If I watch TV till 12AM, I won't sleep well. Otherwise, I have no problem if I don't watch.	Behavioral strategy
Mandarin	P8: The best way to do it is not looking at the clock. Don't check the time, otherwise; the time feels longer.	Behavioral strategy
	P1: Right, try not to give yourself pressure. If I slept four hours today and the doctor said it's already enough, stop worrying. Just do whatever you enjoy doing. If you like making tea, start making tea; if you like reading newspaper, start reading. Don't overthink about it. Treat it this way, and don't pay attention to other things.	Behavioral strategy
Mandarin	P2: I have to take sleeping medication to go to sleep.	Pharmacological remedy
Cantonese	P10: I usually take a pill in order to sleep. I have to take a pill. After a pill, I can sleep from 10ish PM to 6ish AM If I don't take a pill, not sure if it's psychosomatic, but I can't fall asleep even it's very late at night. Some of my friends said they have been taking it for more than ten, twenty years already, and I said, just let it be.	Pharmacological remedy
Daily sleep-related routines (9 quotes)		
Cantonese	P7: I get up at 5AM in the morning, I go to the restroom and brush my teeth, etc.	Early wake time
Mandarin	P2: Haha, I always long for the sunrise.	Early wake time
Mandarin	P2: I wake up around 6AM every day, I prepare tea for myself after. I boil tea, and drink it myself, I usually spend 1 or 2 hours enjoying my tea before breakfast. After breakfast, it's around 11AM, then I will go wherever I want to go.	Organized morning routine
Mandarin	P8: Yes afternoon nap. Usually sleep for like an hour. I have glaucoma and I have to take eye drop three times, four times. Four droplets each time. At night, I have to take six kinds of medications.	Daytime napping
Mandarin	P1: She said she only sleeps one hour at most for naps. I do the same thing. Sometimes I just close my eyes and relax, not falling to sleep.	Daytime napping
Mandarin	P1: If I take a one hour nap, I will have good energy at night.	Benefits of daytime napping
Mandarin	P6: I usually sleep a bit early. Typically around 8PM.	Consistent bedtime routine
Cantonese	P5: Yes, I go to sleep right after dinner.	Consistent bedtime routine
Cantonese	P9: Sometimes when it is about 11PM, 12AM, I would begin to sleep. At that time, it may not be possible to fall asleep right away. I hear from others that the best time to sleep is around 10PM and fall asleep by 11PM. I want to develop this good habit, but most of the time, I always receive a phone call on the days I want to go to bed early. Haha!	Barriers to bedtime routine

Table B

Summary of Bangladeshi sleep-related comments

Location	Exemplary Quote(s)	Notes/Sub-Categories
Daily sleep-related routines (7 quotes)		
Faith Center (Mosque)	A1: After I wake up I'll usually go outside, do some grocery shopping and go to the mosque or come home and pray. I'm not as active as I was before. It takes a lot of energy for me to walk five blocks so it's not like it was before. I also don't know what I would do if suddenly something happened so I like to stay safe.	Physical tiredness
Faith Center (Mosque)	A7: Well, I wake up and I pray. After that I go back to sleep for about an hour.	Waking to pray – falling back to sleep after prayer
Faith Center (Mosque)	A1: I wake up around prayer time so I'll pray and I'll check my diabetes. I'll make sure that it's stable. Then I'll make tea and eat my breakfast and I'll go back to sleep and wake up around 9AM or 10AM.	Waking to pray – falling back to sleep after prayer
Community Center	F3: Most of the time, I wake up before the sunrise prayer and I'll pray. What I'm really happy about is that I'm able to fall asleep if I wake up and pray. Most people can't fall back asleep once they've woken up, and have been up for a couple of hours but I find that I have no problem going back to sleep once I've been up for several hours. I try to go back to sleep after I pray.	Waking to pray – falling back to sleep after prayer
Community Center	F4: I wake up and I pray. I try not to do too much work since I am sick. I wake up and I'll make breakfast and tea for everyone, just basic women's work. Sometimes I have chores to do around the house so I'll do those, if not then I'll watch some TV.	Waking to pray and starting their day
Community Center	M1: I wake up and I pray, sometimes I go to the senior center and the days that I don't go to the center I stay at home. Sometimes I have chores to do so I'll do those and go grocery shopping as well. Most of my exercise comes from walking in the morning or doing grocery shopping.	Waking to pray and starting their day
Community Center	M2: I usually wake up around sunrise and pray. I'll do a little bit of chores here and there after which I have my breakfast. I usually spend the morning cooking or doing small errands. Sometimes I'll go grocery shopping and bring back food before noon.	Waking to pray and starting their day
Sleep difficulties (6 quotes)		
Community Center	M1: My main problem is back pain. I have chronic back pain and it really affects my lifestyle. It becomes very difficult to walk and I have to rest in between very frequently. I have had open heart surgery, so there is some protocols and rules that I have to follow very strictly. I make sure that I take my medications on time, and do the necessary amount of physical activity. I can't say that I do it every day vigorously but I try my best. I've noticed that when I'm in a good state of mind and I'm happy that my physical self feels better. Whenever I get frustrated, or in a bad mood I noticed a negative change in my physical energy. Therefore, I think it's very important that my mental state is as good as my physical state. I also worry about my two sons. I try to be as accessible to them as I can and help them out as much as I can. I worked a lot on diabetes, high blood pressure and I've tried to live by the advice that I've given other people.	Reasons for sleep difficulties - Chronic conditions - Significant pain
Faith Center (Mosque)	A5: I feel like with aging comes different illnesses such as cholesterol, and there's been a lot of weight gain which causes a lot of physical tiredness.	Reasons for sleep difficulties –Chronic conditions - Physical discomfort or other health issues affecting sleep
Faith Center (Mosque)	A1: I don't have diabetes but I do have heart disease, cholesterol and just general body aching.	Reasons for sleep difficulties –Chronic conditions - Other health issues affecting sleep
Faith Center (Mosque)	A4: Yeah I've got a lot older and now I have diabetes and sometimes I have to go to the hospital, if I don't watch what I eat. I can't eat the way I used to eat and I can't eat what I used to eat. Sometimes I'll sleep at night and sometimes I don't get any sleep.	Reasons for sleep difficulties –Chronic conditions - Feeling of being out of control
Community Center	F3: For me the only issue I have is I'm sleepy during a certain window of time and if I missed that time that it's difficult for me to fall back asleep.	Difficulty falling asleep

Location	Exemplary Quote(s)	Notes/Sub-Categories
Community Center	F2: I also have trouble sleeping. I often don't sleep through the night and most of the time I wake up several times throughout the night so I try to keep myself busy by doing little chores.	Nighttime awakenings
Community Center	F3: I would like to add something about sleeping. I sleep very well, and I've never really taken a sedative or sleeping pill in my life.	Good sleep quality
Faith Center (Mosque)	A3: I feel like I sleep too much. I can fall asleep anywhere. I only feel sleepy. At night are usually don't have trouble sleeping but sometimes I wake up in the middle of the night.	Excessive daytime sleepiness
Socializing (5 quotes)		
Community Center	F4: I look forward to coming to the senior center and the days that I don't, I make sure I go around the neighborhood and take walks. If the weather is good then I'll go to the market and do some shopping.	Senior center - social support from the community
Community Center	M1: If I keep myself busy and occupy myself I can sleep well at night.	Staying busy and sleep
Community Center	F2: During the day I'll also try to run some errands, come to the senior center, or walk around the neighborhood.	Walking in the neighborhood
Community Center	M2: A lot of the times I will go out in the neighborhood, and since a lot of people know me, I'll be able to speak with people from the community and the neighborhood.	Walking in the neighborhood -communication within the community
Community Center	F3: I think coming to centers like the senior center is very useful in a very positive experience for many older people to have since they are often alone. There's a lot of activities, social activities and physical activities that help the elderly. It's good to keep yourself busy since I've noticed that with a lot of free time that's when people start thinking negative thoughts.	Senior center -social support from the community
Remedies for sleep (2 quotes)		
Community Center	F4: I have trouble sleeping, I don't sleep through the night at all. I try not to sleep in the afternoon because then it becomes very difficult to sleep at night.	Behavioral strategy
Faith Center (Mosque)	A6: I also think it's more of a mental thing. You're aware of the consequences that comes with not eating healthy and not exercising. For example, I know that if I eat a little bit too much it will be more difficult for me to sleep therefore I need to practice self-control. My health is my motivator.	Behavioral strategy